

DRAB GREEN

Work Order ID 66669



Wednesday, February 23, 2011 2:16:56 PM

Item ID:	D205-634-041	Accept		Setup	Start	
Revision ID:						
Item Name:	Replacement Skidtube				Stop	
Start Date:	2/23/2011	Start Qty:	1.00			
Required Date:	3/11/2011	Req'd Qty:	1.00			
Reference:						

Approvals:	Process Plan:	<i>PL</i>	Date:	<i>11-02-23</i>	Tooling:		Date:	
	QC:		Date:		SPC (Y/N):		Date:	

Run	Start	
	Stop	

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D2580	Rev.D DEO-D1								

100		0.00
	DOCUMENT CONTROL	
DC	Memo	0.00
Document Control	Photocopy D205-634 bluefile & type labels per PPP D205-634-041	CHG003

N/A

110		0.00
	BENDING MACHINE - SKIDTUBES	
CNC Bend 1	Memo	0.00
CNC Delta 100 Bender	1-Bend as per program D2580.C on CNC Bender and Folio 16	
	2-Cut tubes as per Dwg. D2580	
	3- scribe batch# in aft end of tube	

1 @ BEU/03/04

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Item ID: D205-634-041

Accept



Setup Start



Revision ID:

Item Name: Replacement Skidtube

Stop



Start Date: 2/23/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 3/11/2011 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start



QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

120

0.00



Skidtubes

Memo

0.00

1- Deburr ends and remove bending marks

2- Prepare tube for swaging as per QSI 002

130

0.00



QC

QC5- Inspect part completeness to step on W/O

Memo

0.00

Quality Control

11-3-8

Sulorlog

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Start Date: 2/23/2011 Start Qty: 1.00

Required Date: 3/11/2011 Req'd Qty: 1.00

Reference:

Cust Item ID:

Customer:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start

Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140		0.00							
Skidtubes									
Skidtubes									
	Memo	0.00							
	1-Weld step D2576 as per Dwg. D2580 and QSI004 A/R□□□ Aluminum Rod								
	2-Grind welds on step as per Dwg D2580								
	3-Insert D4202-1 spacer, swage as per QSI002 and trim/ grind flush per QSI002 and dwg. Hold x-bolt with DT9701 Use tube expander 1/2 x17G to start expansion and finish with 1/2 x 18G to achieve dwg dimention.								
	4-Drill holes for wearplates using DT 8217 & DT8937 Open holes to 19/64", adjust stopper not to hit web.Deburr								
	6-Drill pilot holes for aft cap using DT 8215Open holes to 0.208". Deburr								
	7-Drill pilot holes for Tow ring using DT8091, open to .640"and Deburr								
150									
QC	QC10- Inspect visual per QSI004- ground welds	0.00							
Quality Control	Memo	0.00							

11/03/09

DP 11-3-9

BE 11/03/09

PK →

BB

11/03/10

Sub 11/03/10

④

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D205-634-041 PAR #: _____ Fault Category: Eng-design NCR: Yes No DQA: _____ Date: 11/03/28
 Resolution: rework Disposition: rework QA: N/C Closed: ✓ Date: 11/03/28

NCR: 66669		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
11/03/14	#140	Found that the cross bolt spacers have cracks. Some large + small cracks. RC Process	CP 11.03.21	→ Drill out + Remove cracked x-bolt spacers REPLACE #5, 6, 8, 13, 15, 17, 19 FROM AET END. 049 WHI 24303-1 B 07308	BE 11/03/15	S 11/03/17	CP 11.03.21 Q51 042	S 11/03/14
		R.C. Design: x-bolt wall thickness too thick for swaying.						

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Cust Item ID:

Required Date: 3/11/2011 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop



Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

160

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

no cracks

Start 11/3/17

End 11/3/17

1

170

Pressure Wash per QSI005 4.3

0.00



HandFinish

Memo

0.00

Hand Finishing

Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch and leave fwd cap out of solution.

1 11-3-17

180

White Gloss(Ref.4.3.5.1) per QSI005 4.3-Alum

0.00



Powdercoat

Memo

Powder Coating

START TIME:
OVEN TEMPERATURE:
FINISH TIME:

DRAB GREEN

M 104476 8:35
800
H105

1 11-3-17

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Cust Item ID:

Required Date: 3/11/2011 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

190

QC3- Inspect Part Finish

0.00



QC

Memo

0.00

Quality Control

1 0 21 103/18

W/O:		WORK ORDER CHANGES					
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Reference:

Cust Item ID:

Customer:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

200

0.00



HandFinish

Hand Finishing

Memo

0.00

1-Install inserts & wearplates & Gaskets as per Dwg. D2580. Use a drop of Sikaflex on insert holes before installing wearplates

✓ A/R ☐ ☐ ☐ Sikaflex-291 ☐ M1160040Sikaflex expire date: 11/08

✓ 2-Coat D2594-3 O' rings with Petroleum Jelly and install on D2594-1 plugs as per Dwg D2580

✓ 3-Inspect for foreign object per QSI 024

4-Install 2855 Aft Cap as per Dwg D2580 and seal Fwd Step & Aft Cap with Sikaflex. Clean excess adhesive

✓ A/R ☐ ☐ ☐ Sikaflex-291 ☐ M1160040Sikaflex expire date: 11/08

5-Wing Walk as per Dwg D2580 and QSI 005 4.4

✓ Batch: M1164021 0 2403/18

W/O:		WORK ORDER CHANGES					
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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Item ID: D205-634-041

Accept



Setup Start



Revision ID:

Stop



Item Name: Replacement Skidtube

Start Date: 2/23/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 3/11/2011 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

210



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

0.00

Suloz/18

Memo

Inspect Aft Cap, Fwd Step and Wing Walk of work to Current Step Inspect for Foreign objects per QSI 024

④

220



Packaging

Packaging

Packaging

0.00

0.00

Memo

Identify and pack for shipping as per PPPD205-634-041

Location:

PPP Rev:

PPP 67109

PO 11/3/21

230



QC

Quality Control

QC21- Final Inspection - Work Order Release

0.00

0.00

Memo

11/3/21

CL 11/03/21

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Picklist Print

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Work Order ID: 66669

Parent Item: D205-634-041

Parent Item Name: Replacement Skidtube



Start Date: 2/23/2011

Required Date: 3/11/2011

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:N 02.08.28 FP was QC5 in Step 27; Added QC5 to Step 30
KJ IPP Rev P 10.02.19
per PAR09-043 EC verified by:DD
IPP Rev. O 06.02.28 Added paperwork EC
IPP Rev:P 07-07-09 SS Wearplates & Gaskets JLM IPP Rev:Q
10.12.01 as per chg003 DD verf:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D4202-1 Spacer		Manufactured	No			140	Each	166.0000	20	20			
<div> <div>Location</div> <div>Loc Qty</div> <div>Loc Code</div> </div>													
<div> <div>LG</div> <div>166</div> <div></div> </div>													
<div> <div>65529</div> <div>166</div> <div></div> </div>													
D2580-1 205 Skidtube bent detail		Manufactured	No			110	Each	5.0000	1	1			
<div> <div>Location</div> <div>Loc Qty</div> <div>Loc Code</div> </div>													
<div> <div>ST046</div> <div>5</div> <div></div> </div>													
<div> <div>59856</div> <div>1</div> <div></div> </div>													
<div> <div>66095</div> <div>2</div> <div></div> </div>													
<div> <div>66268</div> <div>2</div> <div></div> </div>													
D2576-3 Step (maching detail)		Manufactured	No			140	Each	52.0000	1	1			
<div> <div>Location</div> <div>Loc Qty</div> <div>Loc Code</div> </div>													
<div> <div>LG</div> <div>52</div> <div></div> </div>													
<div> <div>46661</div> <div>4</div> <div></div> </div>													
<div> <div>52215</div> <div>48</div> <div></div> </div>													

BE 11/03/08
B 66121 (20)

BE 11/03/04
B 65509 x 1

BE 11/03/08

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Picklist Print

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Page 2

Work Order ID: 66669

Parent Item: D205-634-041

Parent Item Name: Replacement Skidtube

Start Date: 2/23/2011

Required Date: 3/11/2011

Start Qty: 1.00

Required Qty: 1.00

D2855

Manufactured No

200 Each

42.0000 1 1



Cap



11/03/18

Location

Loc Qty

Loc Code

FP6

1

1365519

x1

56613

1

ST026

41

50513

1

50770

28

51539

2

53791

10

AN3-5A

Purchased No

200 Each

732.0000 2 2



Bolt



11/03/18

Location

Loc Qty

Loc Code

ST350

732

115016

56

115371

500

116632

176

x2

AN960JD10L

NAS1149D0332J Purchased

No

200 Each

6.0000 2 2



Washer



11/03/18

Location

Loc Qty

Loc Code

ST335

6

111710

x2

11912

6

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Page 2

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Page 3

Work Order ID: 66669

Parent Item: D205-634-041

Parent Item Name: Replacement Skidtube

Start Date: 2/23/2011

Required Date: 3/11/2011

Start Qty: 1.00

Required Qty: 1.00

ALS7-1032-130

Purchased

No

200

Each

1,814.000

50

50



Insert



2/23/11

Location

Loc Qty

Loc Code

FP

21

111686d

x50

115079

21

ST282

1793

111529

32

113238

17

115502

500

115581

244

116800

1000

AN3C4A

Purchased

No

200

Each

2,296.000

50

50



BOLT



2/23/11

Location

Loc Qty

Loc Code

ST350

2296

1117010

x50

115300

25

116075

337

116704

734

116924

1200

AN960C10L

NAS1149C0332
R

Purchased

No

200

Each

127.0000

50

50



washer



2/23/11

Location

Loc Qty

Loc Code

ST245

127

1116804

x50

107534

59

108246

68

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Page 3

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Start Date: 2/23/2011



Required Date: 3/11/2011

Start Qty: 1.00



Required Qty: 1.00

D3566-13	Manufactured	No	200	Each	34.0000	1	1
							<u>xl 11/03/18</u>
Gasket							



<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FP014	34	
64070	17	
66137	17	

D3566-5	Manufactured	No	200	Each	13.0000	1	1
							<u>xl 11/03/18</u>
Gasket							

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FP015	13	B65528
63574	1	
66146	12	

D3566-1	Manufactured	No	200	Each	33.0000	2	2
							<u>xl 11/03/18</u>
Gasket							

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FP015	33	B65525
57715	1	
66040	20	
66129	12	

D3564-11	Manufactured	No	200	Each	11.0000	1	1
							<u>xl 11/03/18</u>
Wearshoe							

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FP019	11	B66554
65159	11	

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Start Date: 2/23/2011

Required Date: 3/11/2011

Start Qty: 1.00

Required Qty: 1.00

D3564-13	Manufactured	No	200	Each	25.0000	1	1
							<u>XL 11/03/18</u>
Wearshoe							

Location

Loc Qty

Loc Code

FP17

25

B66549

59660

1



XL

62229

2

66136

22

D3564-9	Manufactured	No	200	Each	4.0000	1	1
							<u>XL 11/03/18</u>
Wearshoe							

Location

Loc Qty

Loc Code

FP

1

B65524

55334

1



XL

FP19

3

62238

3

D3564-5	Manufactured	No	200	Each	19.0000	1	1
							<u>XL 11/03/18</u>
Wearshoe							

Location

Loc Qty

Loc Code

FG

1

34806

1

FP19

2

57525

1

58709

1

FP-19

16

63575

1

66148

15

XL

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Start Date: 2/23/2011

Required Date: 3/11/2011

Start Qty: 1.00

Required Qty: 1.00

D2594-3

Manufactured No

200

Each

1,031.000

16

16



XL 4/03/18

O-Ring, 205 Skidtube

Location

Loc Qty

Loc Code

FP

543

55546

19

58191

12

59358

12

65518

500

fpa

488

61762

488

X16

D2594-1

Manufactured No

200

Each

327.0000

16

16



XL 4/03/18

Plug, 205 Skidtube

Location

Loc Qty

Loc Code

FP

183

42807

112

55002

71

FP14

144

58434

15

65980

129

B65512

X5

B67088

X12

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART

DESIGN #	DRAWN BY RH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED #	APPROVED #	DRAWING NO. D2580	REV. D SHEET 1 OF 3
DATE 07.02.27		TITLE 205 SKIDTUBE ASSEMBLY	SCALE NTS
A	96.09.16	NEW ISSUE	
B	96.12.02	AS MANUFACTURED	
C	98.08.26	REDRAWN, INCLUDED DEO 9094/9097	
D	07.02.27	CHANGE TO SS WEARPLATES AND GASKETS, INCLUDE DEO 9124/9183	

RELEASED
07-06-28 #**DEO ATTACHED**

QTY -041	QTY -045	Part Number	Description
X		D2580-041	SKIDTUBE ASSEMBLY
	X	D2580-045	SKIDTUBE ASSEMBLY
1	1	D2500-1-190	EXTRUSION
1	1	D2576-3	STEP
20	24	D2579	CROSS BOLT SPACER
16	16	D2594-1	PLUG
16	16	D2594-3	O-RING
1	1	D2596	205 WEB
1	1	D2855	AFT CAP
1	1	D3564-5	WEARSHOE
1	1	D3564-9	WEARSHOE
1	1	D3564-11	WEARSHOE
1	1	D3564-13	WEARSHOE
2	2	D3566-1	GASKET
1	1	D3566-5	GASKET
1	1	D3566-13	GASKET
50	50	ALS7-1032-130 or AKS7-1032-130 or AKS4-1032-130 or AELS-1032-130	INSERT
50	50	AN3C4A	BOLT
2	2	AN3-5A	BOLT
50	50	AN960C10L	WASHER
2	2	AN960JD10L	WASHER

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SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 66669
07-11-02-23

GENERAL NOTES:

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 2) ALL DIMENSIONS ARE IN INCHES
- 3) INSERT D2596 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP.
- 4) BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
- 5) USE DART DRILL TEMPLATE TD2577-205 TO LOCATE AND DRILL Ø0.297 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTION D-D (50 PLACES) AFTER FINISH. INSTALL AN3C4A BOLTS AND AN960C10L WASHERS WITH SIKAFLEX-241/-291.
- 6) WELDING TO BE DONE PER DART QSI 004.
- 7) FINISH:
SEE NOTES ON
PAGE 2 FOR D2580-041 AND
PAGE 3 FOR D2580-045
- 8) INSERT D2594-1 PLUG C/W D2594-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE) AFTER FINISH (16 PLACES).

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W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

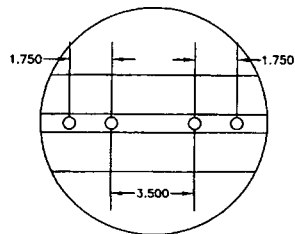
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Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

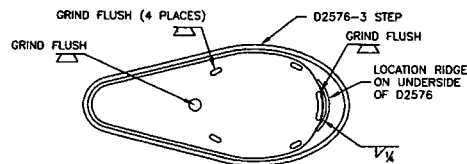
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DETAIL A
SCALE 5:24



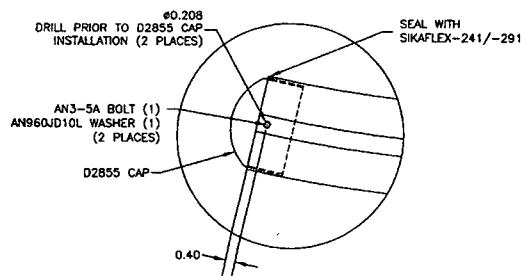
DETAIL B
SCALE 5:24



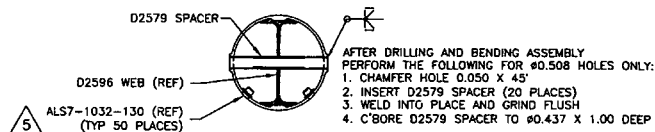
RELEASED
07.06.28

DEO ATTACHED

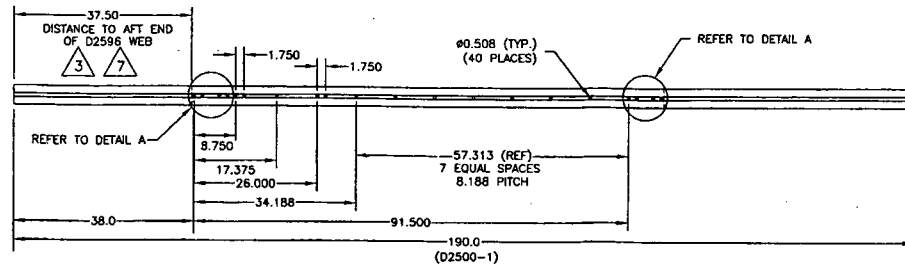
DETAIL C
SCALE 5:24



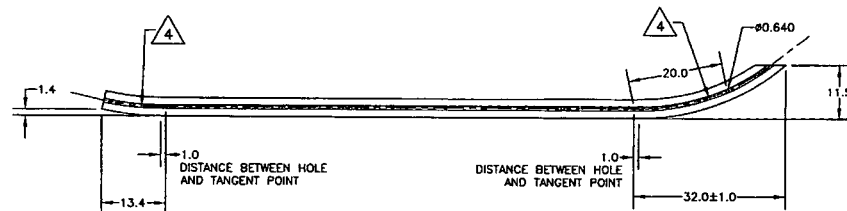
SECTION D-D
SCALE 5:24



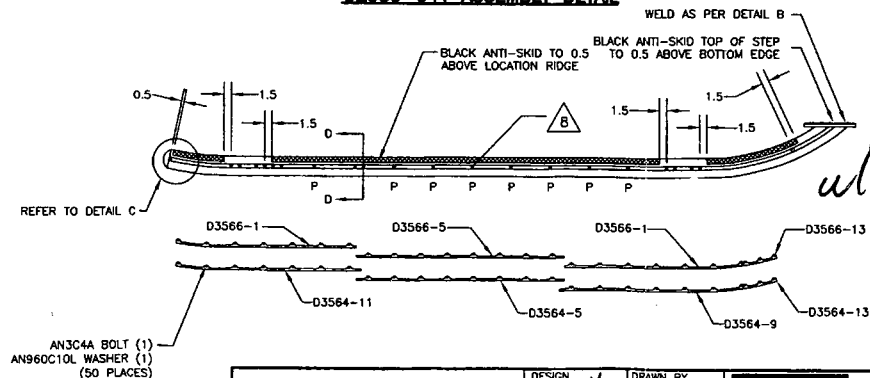
D2580-1 DRILLING DETAIL



D2580-1 BENDING AND CUTTING DETAIL



D2580-041 ASSEMBLY DETAIL



D2580-041 NOTES

- i) FINISH: ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB
POWDER COAT ASSEMBLY GLOSS WHITE (REF. 4.3.5.1) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4

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DESIGN	DRAWN BY	DART	DART AEROSPACE LTD.
CHECKED	APPROVED	DRAWING NO.	REV. D
DATE		02580	SHEET 2 OF 3
07.02.27		TITLE	SCALE
		205 SKIDTUBE ASSEMBLY	1:24

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

RELEASED
07-06-28

Diagram illustrating the grinding locations on a propeller cross-section. The diagram shows a cross-section of a propeller with the following labels and features:

- GRIND FLUSH (4 PLACES)**: Points to four locations on the propeller's surface.
- GRIND FLUSH**: Points to a specific grinding location on the propeller's surface.
- D2576-3 STEP**: Points to a step on the propeller's surface.
- GRIND FLUSH**: Points to a grinding location on the propeller's surface.
- LOCATION RIDGE ON UNDERSIDE OF D2576**: Points to a ridge on the underside of the propeller.
- W**: A small 'W' symbol is located near the bottom right of the propeller cross-section.

DETAIL G
SCALE 5:24

Technical drawing of a circular component with the following labels and dimensions:

- DRILL PRIOR TO D2855 CAP INSTALLATION (2 PLACES)
- #0.208
- SEAL WITH SIKAFLEX-241/-291
- AN3-5A BOLT (1)
- AN980JDTOL WASHER (1) (2 PLACES)
- SEE NOTE ii)
- D2855 CAP
- 0.40

Diagram illustrating the components of a wheel assembly:

- D2579 SPACER
- D2596 WEB (REF)
- ALS7-1032-130 (REF) (TYP 50 PLACES)
- AFTER PERFO
- 1. CHA
- 2. INS
- 3. WEI
- 4. C'B

AFTER DRILLING AND BENDING ASSEMBLY
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:

1. CHAMFER HOLE 0.050 X 45°
2. INSERT D2579 SPACER (20 PLACES)
3. WELD INTO PLACE AND GRIND FLUSH
4. C'BORE D2579 SPACER TO Ø0.437 X 1.00 DEEP

i) FINISH: ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB
POWDER COAT ENTIRE ASSEMBLY GREEN (REF. 4.3.5.8) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4

ii) IT IS ACCEPTABLE TO GRIND A RELIEF IN THE D2855 AFT CAP TO PREVENT INTERFERENCE
WITH THE SPACER AT THIS LOCATION

[illegible]

Figure 6-10 is a technical drawing showing a typical cross-section of a road with a 4% grade. The diagram illustrates the relationship between the road's width, the location of a hole, and the tangent point. Key dimensions include:

- Left Side Dimensions:**
 - 1.4 m: Offset from the left edge to the centerline.
 - 5.085 m: Distance from the left edge to the hole.
 - 5.338 (REF) m: Reference distance from the left edge to the tangent point.
 - 13.4 m: Distance between the hole and the tangent point.
- Right Side Dimensions:**
 - 39.580 m: Distance from the centerline to the hole.
 - 5.915 m: Distance from the centerline to the tangent point.
 - 32.0 ± 1.0 m: Total width of the road section.
 - 20.0 m: Distance from the hole to the outer edge.
 - 0.508 (S PLACES) m: Dimension near the hole.
- Other Features:**
 - A 4% grade triangle symbol is located at the top right.
 - A note indicates "DISTANCE BETWEEN HOLE AND TANGENT POINT".

[illegible]

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ASSEMBLY

SCALE
1:24

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DRAWING NO. D2580	TITLE 205 SKIDTUBE ASSEMBLY	REV. D	DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D2580-D-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>UP</i>	CHECKED <i>L</i>	MFG. APPR. <i>E</i>	APPROVED <i>MP</i>		DE APPR. <i>#</i>		
DATE 10.09.22	DATE 10.11.04	DATE 10.11.04	DATE 10/11/04		DATE 10.11.04		

PURPOSE:

CHANGE ALL WELDED CROSSBOLT SPACERS TO SWAGED SPACERS

CHANGE:

PARTS LIST IS AMENDED AS FOLLOWS:

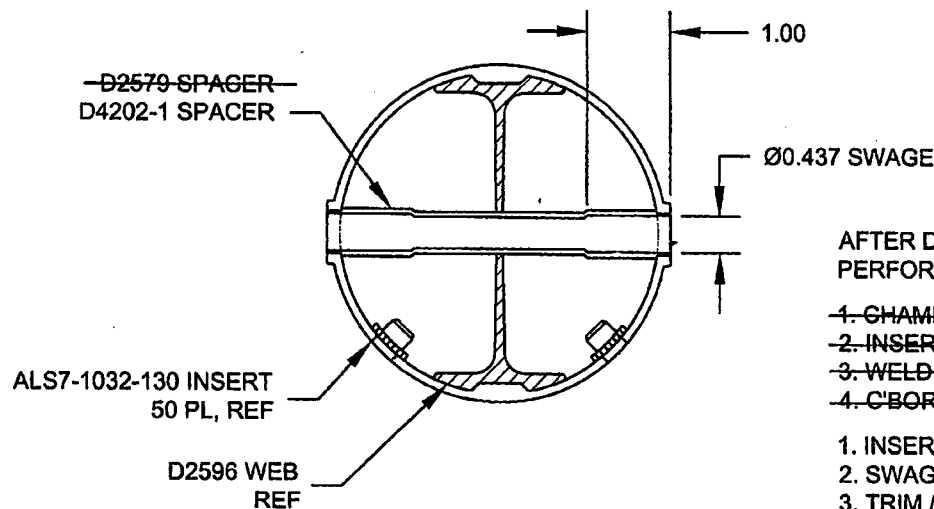
WAS

QTY	QTY	PART NUMBER	DESCRIPTION
-041	-045		
20	24	D2579	CROSS BOLT SPACER

IS

20	24	D4202-1	SPACER
----	----	---------	--------

SECTION D-D & SECTION H-H ARE AMENDED AS FOLLOWS:



SECTION D-D
NOT TO SCALE

SECTION H-H
NOT TO SCALE

RELEASED
2010-11-18
MP

AFTER DRILLING AND BENDING ASSEMBLY
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:

1. CHAMFER HOLE 0.050 X 45°
2. INSERT D2579 SPACER (20 PLACES)
3. WELD INTO PLACE AND GRIND FLUSH
4. C'BORE D2579 SPACER TO Ø0.437 X 1.00 DEEP

1. INSERT D4202-1 SPACER, 20 PL (-041) OR 24 PL (-045)
2. SWAGE TO Ø0.437 X 1.00 DEEP PER QSI 002
3. TRIM / GRIND FLUSH PER QSI 002

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Chris Provencal

From: David Shepherd <dshepherd@dartaero.com>
Sent: March 16, 2011 6:21 PM
To: 'Chris Provencal'
Cc: 'Mike Petsche'; 'Linda Lacelle'; 'Bill Beckett'
Subject: RE: 0.049 Wall Xbolt Spacers

Chris,

The substitution is acceptable. However, I would still like to see that this is repeatable. Per my earlier suggestion, I assume production is building a couple of tubes with 0.049 wall crossbolt spacers to verify that there is no cracking after several swagings???

David

From: Chris Provencal [mailto:cprovencal@dartaero.com]
Sent: Wednesday, March 16, 2011 9:14 AM
To: David Shepherd
Cc: Mike Petsche
Subject: 0.049 Wall Xbolt Spacers

David,

To approve the re-worked xbolt spacers, I'd need to attach an email from you giving OK to substitute the 0.058" wall crossbolt spacers with 0.049" wall crossbolt spacers. The crossbolt spacers are otherwise made to D4202 Rev. A.

The justification would be the initial testing, as recorded in the original design review, which showed that 0.049" wall xbolt spacers were stronger than welded/c-bored crossbolt spacers. These findings were confirmed when we tested another batch of swaged vs welded samples yesterday (March 15th, 2011).

Chris